BUSINESS PROGRAMS

Understanding Your Electric Bill

TECHNICAL DATA SHEET

To learn more about Focus on Energy,SM call 800.762.7077 or visit focusonenergy.com

You may not realize it, but your monthly electric bill represents a valuable tool. It tells you what, when and how you spend your energy dollars every month. By knowing how to "translate" these dollars and cents into energy use information, you can identify energy and cost-saving opportunities. Then, after you've taken steps to reduce energy use, your bill can act as a "score card" and give you monthly feedback on your progress.

Most electric bills are complex, difficult to read and even harder to understand. As a facility manager, you might not even see them on a monthly basis. Few facility managers or operators know what electric bills look like. Bills are often mailed to another office and paid by the accounting staff, before you can review them.

WHY SHOULD I WORRY ABOUT MY ELECTRIC BILL?

You can reduce expenses. Electricity costs represent a large portion of your yearly budget.

You can use the savings on other projects. When you reduce electricity costs, you may be able to use those savings to pay for other facility needs.

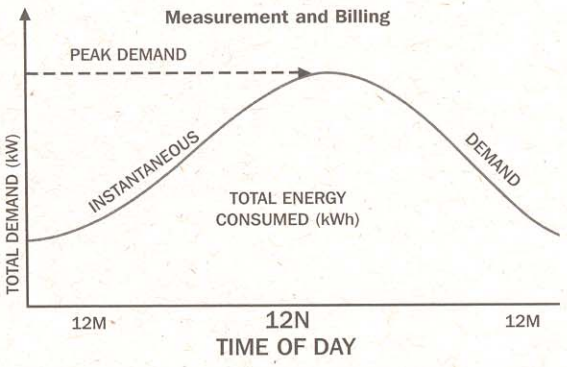
Energy costs will continue to rise. Electricity costs will certainly increase in the years ahead; plan now to manage these cost increases.

However, the operating decisions you make each day directly affect your bill's bottom line. For example, operational issues such as flow management, equipment start/stop schedules and preventive maintenance contribute to each month's bill. If you start reviewing your facility's bills, you can make smarter energy efficient operating decisions and better manage your own budget. Also, by understanding how energy is measured and billed, you can discover ways to reduce energy cost by controlling when and how energy is consumed.

ENERGY 101: HOW ELECTRICITY IS MEASURED

Your electric utility measures your facility's electricity use in two ways. First, your electric meter measures your total electric **energy consumption** over time; this consumption is measured in kilowatt-hours (kWh) of electricity. For example, if you operate a 2 kW electric heater for five hours, it consumes 2 kW x 5 hrs = 10 kWh. Your bill will include a charge for the energy used by this heater and every other electric-powered piece of equipment at your facility. Figure 1 illustrates electric consumption, as represented by the shaded area under the curve.

Figure 1. ELECTRIC ENERGY Measurement and Billing



Second, your demand meter registers **electric demand** — the maximum amount of energy you use at one specific time. Demand is measured in kilowatts (kW) of electricity. In general, non-residential customers pay demand charges while residential customers do not.

Throughout a billing period, a demand meter tracks the peak instantaneous power load. For the electric heater mentioned above, its contribution to the metered demand would be 2 kW at any time the heater is operating. Figure 1 illustrates total demand as well; it is represented by the highest point on the curve. This demand level indicates how much electricity your electric utility must provide to meet your largest demand. You are charged for this demand, even though you may operate at this level for only a short period during a month's billing cycle. You can think of demand charges as "overhead" expenses that your utility incurs for providing an electric supply that is capable of meeting your largest load. The utility company then passes this cost on to you. If you (and other electricity users) can reduce peak demands, then utilities will not need to maintain as many power plants or build new ones.

THE BOTTOM LINE: THE BILL COMES DUE

Your electric bill will contain separate charges for energy consumption and demand. Energy consumption is billed at a flat rate ($/kWh) that is multiplied by the total kWh used during the billing period. Electric demand is billed at a specific charge ($/kW) that is multiplied by your facility's peak demand during the billing period.

Typically, electric utilities base demand charges on daytime peak demand (such as from 1:00 to 5:00 in the afternoon). Utilities' generating and distribution systems are most heavily loaded during these peak use hours. Some utilities may also use your maximum annual peak demand to set your minimum demand charge for each month of the year, even if you use less electricity during a particular month. This arrangement is referred to as a "ratchet charge." Additional charges are also added for taxes and fuel cost adjustments, but these charges are generally related to your overall electricity consumption, not your facility's demand charge.

In general, the higher your facility's electricity consumption and electric demand, the higher your utility bill.

TAKING ACTION: NEXT STEPS

When you understand how your facility's electricity use is metered and billed, you can better manage your energy consumption. Then you can take steps to make operational changes to reduce these costs. For example, energy- and cost-saving steps can include:

- Developing a comprehensive energy and cost reduction plan and sharing it with your operators.
- Making utility costs known to operators/personnel.
- Getting copies of your electric bills and keeping a log/chart of monthly use and costs.
- Setting goals and targets for both energy consumption and demand reductions.
- Looking for periods of unusually high or abnormal use and determining the cause.
- Identifying the time of your peak demand, determining causes of this peak, and finding ways to reduce it. Consider possible strategies for shifting equipment operations into off-peak periods.
- Finding equipment that runs unnecessarily and using timers to shut it down when not needed.
- Setting timers so that operation is staggered (for instance two pumps that need to operate only 1 hour per day should be controlled so as not to operate at the same time).
- Understanding that utilities have different rates for different types of customers. Talk with your utility representative, and make sure you are being charged the correct rate for your facility. Inquire if there are programs offered that will allow lower rates.
- Implementing energy efficiency measures.

For assistance with understanding your electric bill, and for other energy efficiency improvements needs, contact your Focus on Energy Advisor.

For more information on the Focus on Energy Program, call 800.762.7077 or visit our Web site at www.focusonenergy.com.

Focus on Energy is a public-private partnership offering energy information and services to energy utility customers throughout Wisconsin. The goals of this program are to encourage energy efficiency and use of renewable energy, enhance the environment, and ensure the future supply of energy for Wisconsin. **800.762.7077. focusonenergy.com**

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